- Contracts with haulers operating in Fairfax County to deliver all waste collected in the county in exchange for a reduced disposal price; and,

- A spot market program to attract local, but out-of-county, MSW to the E/RRF.

Remaining Useful Life and Closure Requirements

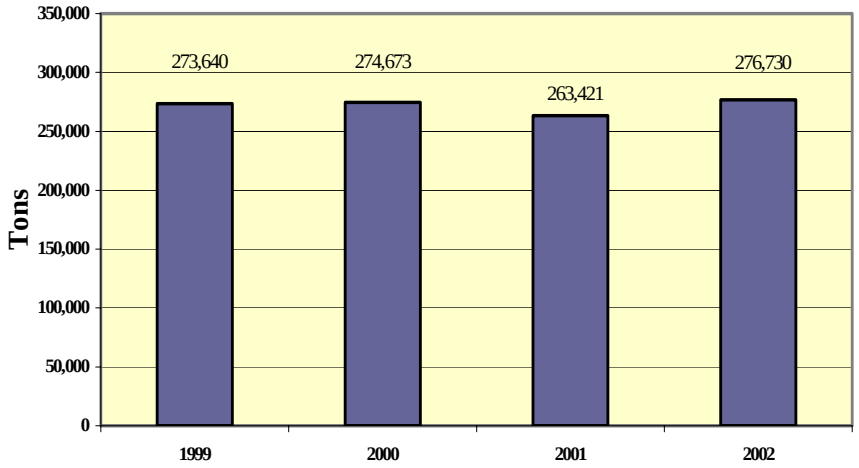
Typically, WTE facilities similar to the E/RRF have a useful life of approximately 40 years. Therefore, the E/RRF should not exceed its remaining useful life during the SWMP planning period. CFI owns the facility and operates it, with oversight of the Fairfax County Solid Waste Authority until the bonds are repaid in 2011. After that date, CFI is projected to remain in the current location until their lease on the E/RRF property expires in 2032.

Ash Disposal Plans

Ash from the E/RRF is disposed of at the nearby Area 3 Ash Landfill.

Ash generated at the E/RRF is hauled to the nearby landfill (referred to as the Area 3 Ash Landfill) for disposal. Fairfax County disposes of approximately 760 tons of ash from the E/RRF in the landfill daily. Figure 6-7 shows the tons of ash generated by the E/RRF in 1999 through 2002 and disposed of at the Area 3 Ash Landfill. (The "Area 3 Ash Landfill" section of this chapter contains more information about the operations of the ash landfill.)

Figure 6-7. E/RRF, Tons of Ash Generated, 1999–2003



The ash produced in the E/RRF comprises a number of residues. Collected ash is cooled and then passed through a "scalper screen," which removes pieces larger than 10 inches. After this initial screening, ferrous and nonferrous metals are removed for sale (see the next subsection). The remaining ash is loaded into trucks for ultimate disposal at the Area 3 Ash Landfill.

Recovery and Sale of Metals

Ash and material that pass through the initial screen (described above) are fed by a conveyor to a rotating magnetic trommel, where ferrous metal is removed. Next, a rotating magnet recovers smaller ferrous metals that were not collected in the initial trommel. The ash then passes through a screen and eddy current separator, where brass, aluminum, copper, and other nonferrous metals are recovered. The recovered metals are stored in the ash building and sold to scrap recyclers. In FY2003, 22,204 tons of ferrous metals and 318 tons of non-ferrous metals were recycled.

Hazardous Materials

The E/RRF screens delivered materials to prevent burning unacceptable waste, including hazardous waste .

To prevent processing unacceptable waste, including hazardous waste, the facility has a screening program for delivered materials. Notices are posted at the point of entry to the facility, and trucks entering the facility are visually inspected.

The tipping floor manager visually inspects all loads for unusual physical properties; tipping floor screening procedures also include random checks of vehicles before unloading the waste. The tipping floor and crane personnel also visually observe the refuse after it is deposited in the pit.

The county is also in the process of designing and installing radiation detection equipment to identify and remove any radioactive material that may be brought for disposal.

Operating Permits

VDEQ requires a Solid Waste Incinerator and Energy Recovery Facility Permit for any owner or operator of incinerators and energy recovery facilities managing non-hazardous waste. The permit is required under Virginia Code § 10.1-1408.1, and Virginia Administrative Code 9 VAC 20-80-480 through 9 VAC 20-80-620.

Permit fees for all solid waste facilities are specified in 9 VAC 20-90-10 et seq. CFI, as the operator of the E/RRF, holds the operating permit and is responsible for compliance.[4]

Air Emissions

The E/RRF air permit includes emission limits for sulfur dioxide, carbon monoxide, nitrogen oxides, hydrochloric acid, particulate matter, dioxin/furans, and mercury. The facility consistently meets its emission limits. Table 6-15 shows 2003 emission testing results.

[4] Virginia Waste Management Board, 9 VAC 20-90, "Solid Waste Management Facility Permit Fees."

Table 6-15. Results of June 2003 Emissions Testing at the E/RRF

Parameter	Permit limit	Average E/RRF result
Sulfur dioxide	29 ppm, or 75% reduction	8.8 ppm
Carbon monoxide	100 ppm	9 ppm
Nitrogen oxides	206.3 pph	193 pph
Hydrochloric acid	29 ppm, or 95% reduction	3.9275 ppm
Particulate matter	27 mg/dscm	5.1575 mg/dscm
Dioxin/furans	30 ng/dscm	0.688 ng/dscm
Mercury	80 ng/dscm, or 85% reduction	1.39125 ng/dscm

Note: ppm = parts per million; pph = pounds per hour; mg = milligram; ng = nanogram; dscm = dry standard cubic meter.

CFI Contract

CFI and the county have a 20-year operating agreement for the E/RRF that will expire in 2011.

As previously mentioned, CFI and the county have a 20-year operating agreement that will expire in 2011. The relationship with the facility past this date has yet to be determined. Negotiations must begin within 5 years of the expiration of the current agreement (i.e., by early 2006).

Ash Disposal

In 1994, a section (100 acres) of the I-95 Sanitary Landfill was re-permitted for waste placement for the construction of a Subtitle D–type liner system. The county designated the site (referred to as the Area 3 Lined Ash Landfill) primarily for ash placement, but it can accept MSW in the event of an emergency shutdown at the E/RRF.

The Area 3 Ash Landfill was designed in four phases, totaling approximately 100 acres. Phase I of the Ash Landfill opened in 1995; its capacity of 26 acres was exhausted in 2001. While the Area 3 Ash Landfill is divided in four main phases, each phase is typically constructed in sub-phases for ease of construction. At the time of this SWMP, ash is currently being disposed of in Phase IIA. This section of the landfill is anticipated to be full in 2004, and Phase IIB is planned for construction in 2004. County staff coordinates construction of new phases to provide an uninterrupted service for disposal.

Ash Disposal Operations

The Area 3 Ash Landfill accepts ash generated at the E/RRF, the Alexandria/Arlington WTE facility, and the county wastewater treatment plant.

The Area 3 Ash Landfill accepts ash generated at the E/RRF as well as ash generated by the Alexandria/Arlington WTE facility through an interjurisdictional agreement, and sludge ash generated by Fairfax County's Noman M. Cole, Jr. Pollution Control Plant. Ash from these facilities is hauled to the ash landfill daily. The ash landfill is located very close to the E/RRF, and vehicles from that facility travel on internal roads to access the site. The landfill only handles ash, and it is exempt from daily cover requirements as long as all slopes drain back into the landfill. External slopes are covered with a layer of soil for intermediate purposes, and will receive a synthetic membrane liner cover when ultimate capacity is reached.

Since ash is an inert material, no landfill gas is generated and no gas collection system is present or required.

A clay/HDPE composite liner underlays the landfill, and another HDPE liner and leak detection system above the bottom liner serve as an extra means of environmental protection. Leachate collected is conveyed to the Noman M. Cole, Jr. Pollution Control Plant through the sanitary sewer system.

Revenue for the ash landfill is computed on a per ton basis. Costs for ash disposal at the landfill are incorporated into the fees per ton for the E/RRF charged by CFI. These costs are recovered in the tipping fees charged by Fairfax County. In addition, Covanta of Alexandria/Arlington and the county's Noman M. Cole, Jr. Pollution Control Plant also pay landfill charges for disposal of their ash.

Capital costs for the construction of the first three phases of the ash landfill are estimated at $34.9 million. Construction of Phase I and Phase IIA have been completed at a cost of $18.4 million; an estimated $7 million is required for Phase IIB and $8.5 million for Phase IIIA.

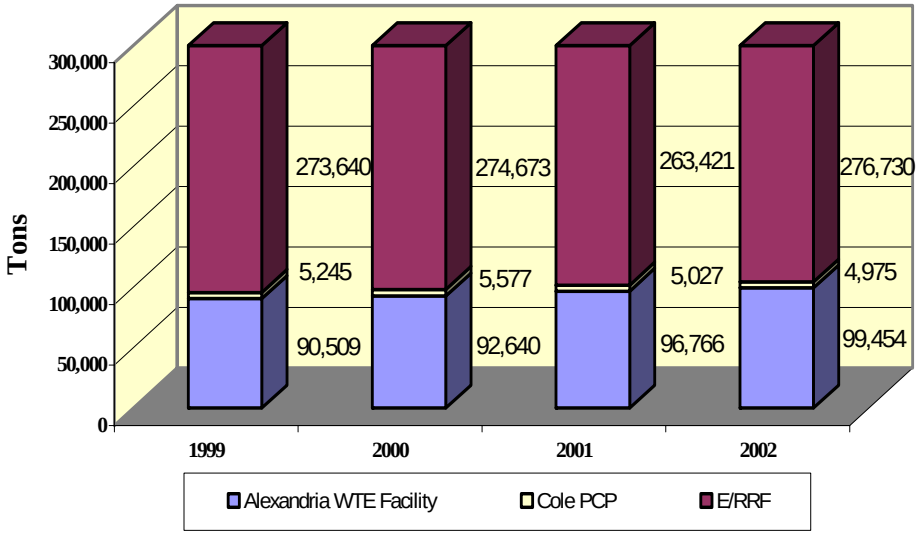
Present and Projected Rate of Use

The Area 3 Ash Landfill accepts an average of 1,034 tons of ash per day.

The Area 3 Ash Landfill accepts an average of 760 tons per day of ash generated from the E/RRF. It also accepts an average of 260 tons per day of ash generated by the Alexandria/Arlington WTE facility and 14 tons per day from the Noman M. Cole, Jr. Pollution Control Plant. These amounts vary on a daily basis, as the WTE facilities have control regarding the processing and storage of ash. However, as the processing capacity of the two WTE facilities is very constant, the amount of ash received on a yearly basis is subsequently consistent. For planning purposes and this report, the assumption is made that these amounts will remain consistent with past amounts. Ash from the E/RRF constitutes

approximately 75 percent of the ash disposed at the landfill. Figure 6-8 shows the tons of ash disposal at the landfill from these three sources from 1999 to 2002.

Figure 6-8. Tons of Ash Accepted at the Area 3 Ash Landfill, 1999–2002



In recent years, E/RRF ash generation has ranged from 25.4 to 26.0 percent of waste feed.

- *E/RRF Ash.* Over the previous 3 years, the ash generation as a percentage of waste feed to the E/RRF has ranged from 25.4 to 26.0 percent (an average of 25.7 percent). The county expects the percentage of ash generation to the E/RRF to remain around this level over the lifetime of the facility. Therefore, the projected annual rate of ash generated by the E/RRF will likely range from 239,000 tons (on the basis of the E/RRF contract minimum) to 281,000 tons (E/RRF full capacity).

- *Arlington/Alexandria WTE Facility Ash.* Fairfax County projects that ash generated by the Arlington/Alexandria WTE facility will remain constant over the next 20 years. As a result, the projected rate of ash generated by the facility will likely range from 90,000 to 100,000 tons per year.

- *Noman M. Cole, Jr. Pollution Control Plant Ash*. Fairfax County projects that ash generated from Noman M. Cole, Jr. Pollution Control Plant will likely increase at the same rate as the projected population growth. As a result, the projected rate of ash generated by the facility will likely range from 5,000 to 6,400 tons per year.

Capacity and Availability

The county expects the Area 3 Ash Landfill to have sufficient capacity to handle ash disposal needs through 2025.

Ash is currently being disposed of in Phase IIA, which has a capacity of approximately 900,000 cubic yards and comprises 12 acres of the site. It is anticipated the Phase IIB of the Area 3 Ash Landfill will be constructed beginning in the spring/summer of 2004 and available to receive ash in late 2004, when the capacity of Phase IIA is exhausted. Phase IIB is estimated to have approximately 3 years of capacity. Together, all phases bring the total ash disposal unit size to approximately 100 acres of the 500 acre I-95 Sanitary Landfill. The county expects the facility to have sufficient capacity to handle estimated ash disposal needs through 2025.

State and Federal Regulation for Ash Landfills

The Area 3 Ash Landfill is part of the I-95 Sanitary Landfill and is part of that facility's permit and not regulated separately. The I-95 Sanitary Landfill is primarily regulated by the VDEQ, regarding air, water, and waste. The landfill holds many permits, and has a myriad of permit requirements that include groundwater sampling, landfill gas testing, surface water testing and other requirements. Landfill leachate is collected and treated at the Noman M. Cole, Jr. Pollution Control Plant.

Before land disposal, 40 CFR Section 268 (the RCRA land disposal regulations) requires that the ash be tested using the TCLP to determine whether it should be classified as a hazardous waste. The ash brought to the Area 3 Ash Landfill has always passed the TCLP test and is not classified as hazardous.

Backup Ash Disposal Options

As discussed previously, the county expects the landfill to have sufficient capacity to handle estimated ash disposal needs through the SWMP planning period. The county can send ash to sanitary landfills outside of the county if an emergency arises, however, significant additional expense would be borne by transportation of this heavy material and tip fees at other facilities.

Sanitary (MSW) Landfills

I-66 Closed Landfill

The I-66 landfill opened in 1962 and ceased operations in 1982. Although the landfill is closed, the I-66 Transfer Station operates on the site.

Processes are being explored to extract natural gas from the landfill, but otherwise all the activity at the landfill relates to the operation of the Transfer Station.